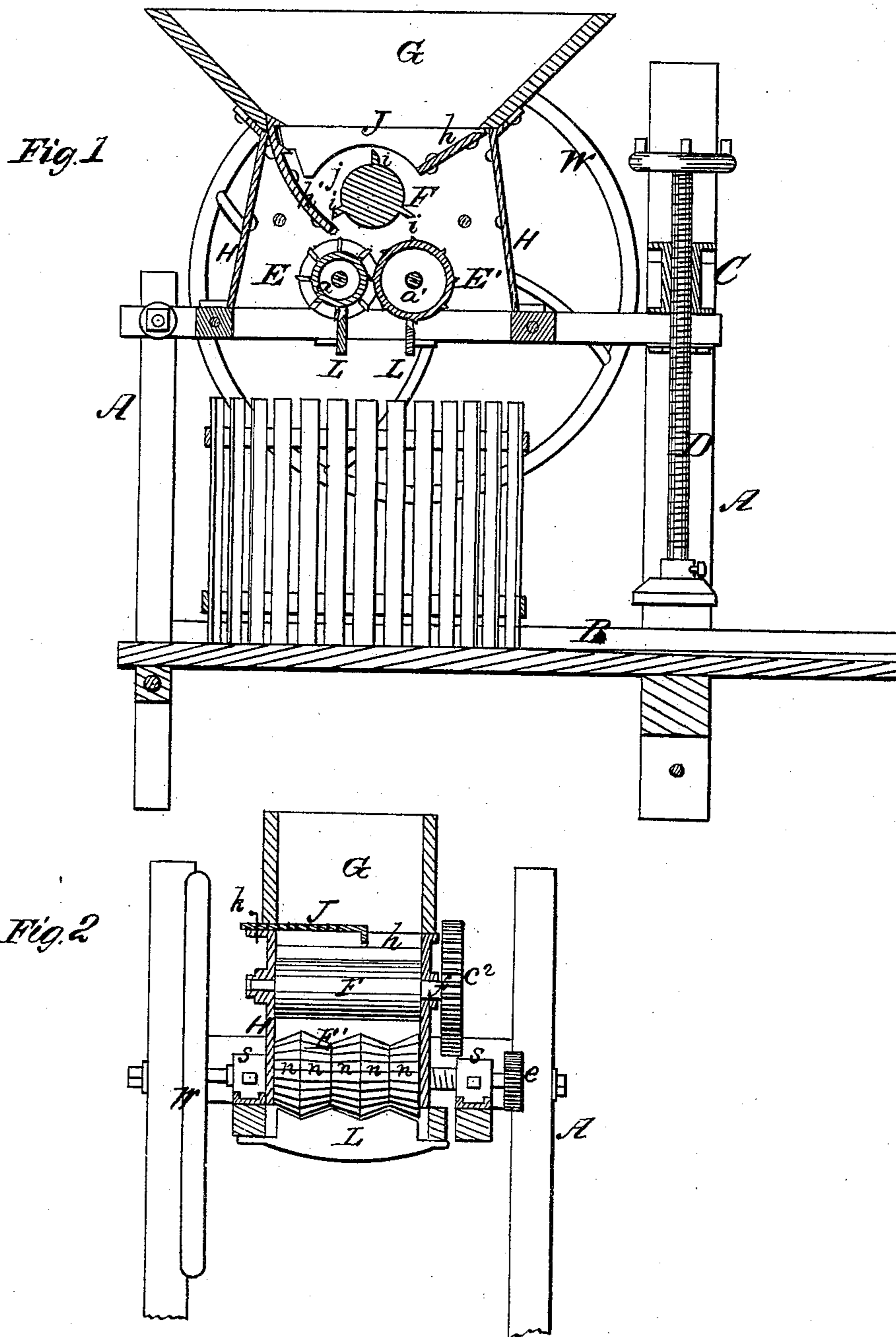


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Cider-Mills.

No. 149,214.

Patented March 31, 1874.



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Fig. 3

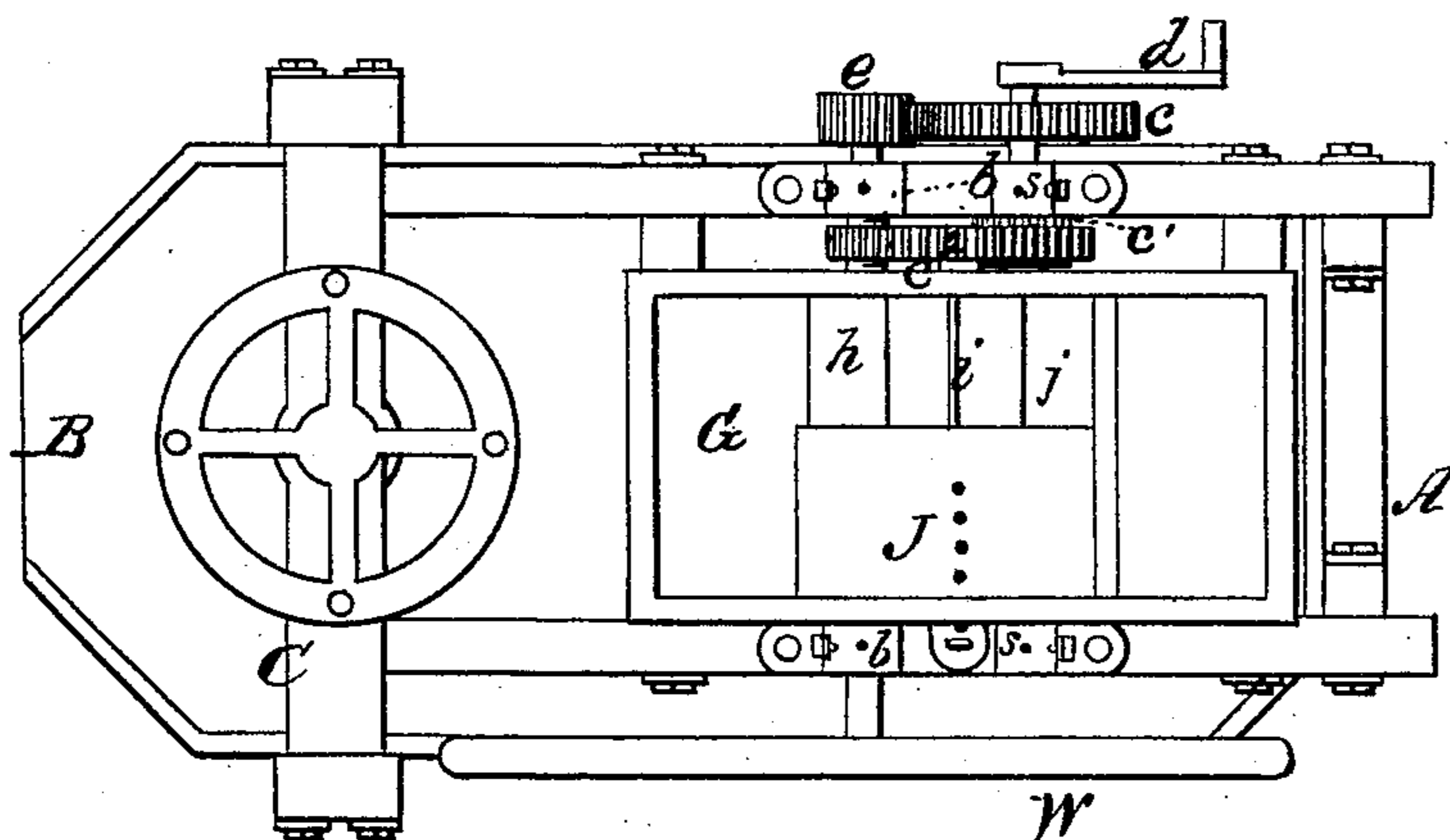


Fig. 4

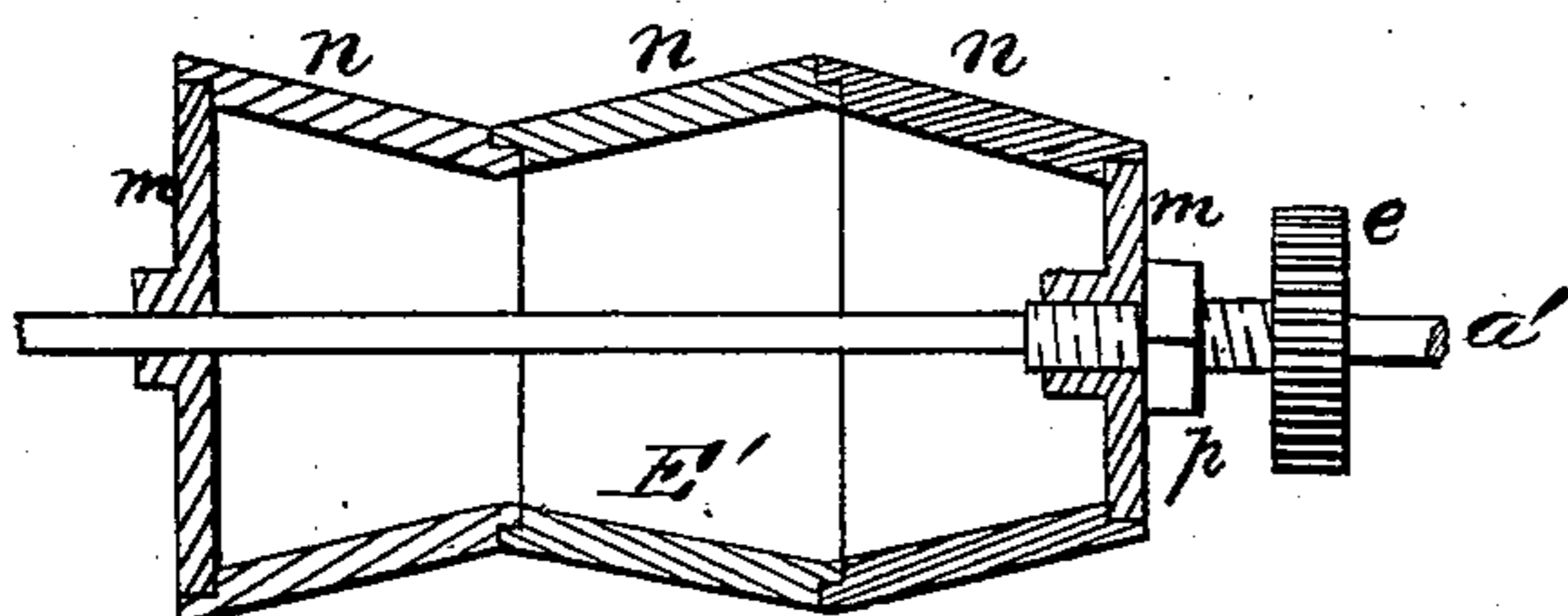
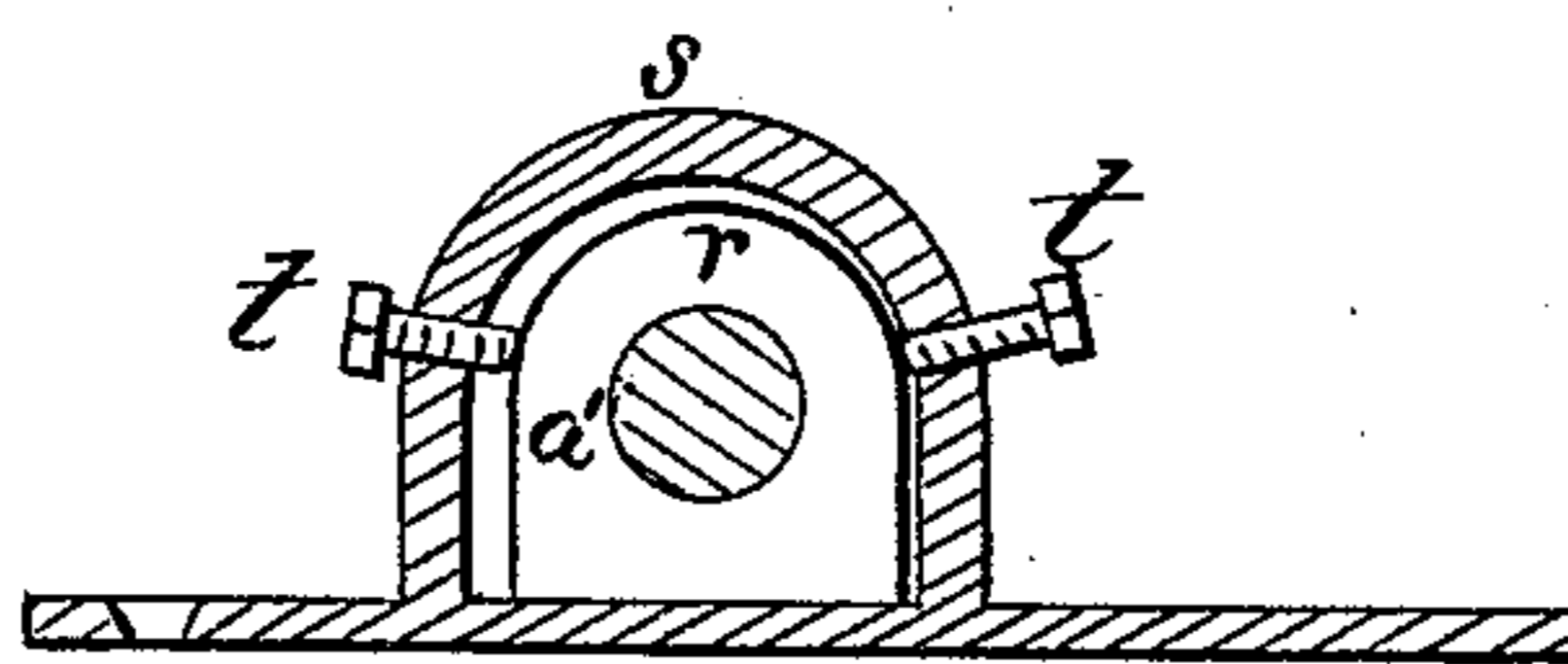


Fig. 5



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UNITED STATES PATENT OFFICE.

THOMAS A. GALT AND GEORGE S. TRACY, OF STERLING, ILLINOIS.

IMPROVEMENT IN CIDER-MILLS.

Specification forming part of Letters Patent No. **149,214**, dated March 31, 1874; application filed February 21, 1874.

To all whom it may concern:

Be it known that we, THOMAS A. GALT and GEORGE S. TRACY, of Sterling, in the county of Whitesides and State of Illinois, have invented a new and valuable Improvement in Cider-Mills; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a longitudinal sectional view of our cider-mill. Fig. 2 is a transverse sectional, and Fig. 3 a plan, view of the same. Figs. 4 and 5 are detail views of the same.

This invention has relation to mills for grinding and pressing apples and other fruits; and it consists in a novel construction of the grinding and crushing rollers for the purpose of facilitating the reduction of the fruit, said rollers being respectively composed of conical frustums, firmly secured together upon a shaft, and presenting a very large reducing-surface on a comparatively short roller. It also consists in the novel construction and arrangement of a hopper, with concave plate, slide, and a slicer, as will be hereinafter more fully described.

The following is a description of our improvements:

In the annexed drawings, A designates the frame of the mill; B, the floor upon which the pomace-receiver is supported, and C a strong casting, which is bolted firmly to one end of the frame A, and through which the follower-screw D is tapped. E E' designate the improved crushing-rollers; F, a rotary slicing-drum, and G the hopper, which latter is bolted to the upper end of a cast-iron box, H, containing said rollers and drum, as shown in the sectional view, Fig. 1. The roller E is applied on a shaft, *a*, having its bearings in boxes *b* *b*, and carrying on one end a spur-wheel, *c*, and a hand-crank, *d*, and also a pinion, *c*¹. The wheel *c* engages with the teeth of a pinion, *e*, which is keyed on the shaft *a'*, on which the roller E' is applied, which latter roller receives

a more rapid rotary motion than the roller E. The pinion *c*¹ engages with a spur-wheel, *c*², keyed on the shaft *f* of the slicing-drum F. Inside the box H, and properly secured thereto, is an inclined plate, *h*, arranged so as to nearly touch the slicing-blades *i* as they revolve; and on the opposite side of the drum F to this plate is a concave plate, *h'*, which forms a throat, *j*, in which the slicing takes place. Above the drum F is a slide, J, the vertical portion of which lies as close as practicable to plates *h* *h'* and said drum. This slide has a row of holes through it for receiving a pin, *k*, by means of which the slide can be fixed to a lip formed on one side of the box or housing H after this slide is properly adjusted. By adjusting slide J, the size of the entrance to the slicing-drum can be increased or diminished as it may be required to feed faster or slower. Each one of the grinding and crushing rollers is made up of conical frustums *n* *n*, connected together by rabbeted joints, as shown in the enlarged sectional view, Fig. 4; and these frustums are put together so as to form alternate ridges and valleys, their surfaces being ribbed, as shown, or in any other suitable manner. At the ends of the rollers plates *m* *m* are applied, so that the frustums can be firmly secured together by means of nuts *p*, applied on the screw-threaded portions of their shafts.

Rollers thus constructed can be shortened or lengthened at pleasure by taking from or adding to them the frustums, and thus we can have a larger or smaller mill, as may be required. The ridges of one roller are received into the valleys of the other roller, thereby bringing the ribbed surfaces in close relation, so that they will grind as well as crush the fruit passed between them.

The shaft *a'* of the corrugated roller E' is journaled in bearings *r* *r*, which are adjustable in boxes *s* *s* by means of set-screws *t*. This roller E' can thus be adjusted nearer to or farther from the roller E, according to the degree of fineness required of the pomace. Roller E' has a balance-wheel, W, keyed on one end of its shaft, for steadying the motion of the mill. The pomace is cleared from the rollers E E'

by means of two scrapers, L L, whose upper edges correspond in their shape to the angular surfaces of these rollers.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a cider-mill, the crushing and grinding rollers, composed of conical frustums *n n*, connected by means of rabbeted joints, heads *m*, and nuts, substantially as described.

2. A crushing and grinding roller having alternate ribbed ridges and valleys, the same composed of the attachable or separable frustums *n*, as shown and described.

3. The combination and arrangement of the hopper G with concave plate *h'*, slide J, and slicer F, all constructed as and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

THOMAS A. GALT.
GEORGE S. TRACY.

Witnesses:

GEORGE E. UPHAM,
PHIL. C. MASI.